



**The binding version is the Italian one:
Determina 152/2023 del 22/12/2023 - Prot n. 888 del 22/12/2023**

Public selection procedure based on qualifications and possible interview for one postdoctoral research fellowship (Assegno di Ricerca, tipologia B “Post Doc”), with title: “BLOSSOM: Study of rapid growth of black holes in binary systems and active galactic nuclei”. The position is funded by the INAF Large Grants 2023 (Decree no. 2 of 19 January 2023) for projects of Fundamental Astrophysics admitted to funding with Decree no. 38 of 22 September 2023 [Prot. n. 0014576, 21/09/2023 - AOO:INAF-CLE - Classif. III/2] Project name "BLOSSOM - BLack hOleS Swift fOrMation". Project F.O. code 1.05.23.01.13. Project CUP C73C23000460005.

**THE DIRECTOR
OF THE INSTITUTE OF SPACE ASTROPHYSICS AND COSMIC PHYSICS
DETERMINE**

The postdoctoral fellowship, within the aforementioned research project, does not mean to cover specific personnel needs of the Institute or of the project itself but rather offers the opportunity of undertaking research activity within the project to all those candidates who wish to acquire knowledge and skills for their professional advancement. Besides, the postdoctoral research fellowship offers to the fellow the opportunity of professional growth by conducting their scientific or technological research activity within a highly qualified environment.

This selection will be managed electronically both for the evaluation of qualifications and for the possible interview in compliance with the directive of the Minister for Public Administration.

Art. 1 – Research project

A public selection is open based on qualifications, possibly supplemented by an interview, for the awarding of a research grant, for an initial duration of 1 year, with the confirmation of the second year subject to the referent’s favorable opinion and financial support, entitled ***“BLOSSOM: study of rapid growth of black holes in binary systems and active galactic nuclei”***.

The winner will perform the research activity at the “Istituto di Astrofisica Spaziale e Fisica Cosmica di Palermo” (Institute of Space Astrophysics and Cosmic Physics or INAF-IASF Palermo in Italy), under the supervision of **Dr. Ciro Pinto**, Researcher at INAF-IASF Palermo, and will be part of a team of researchers experts in the study of the Universe through space and terrestrial observatories operating primarily in the X-ray and gamma-ray energy bands.

The SEAWIND team, led by INAF-IASF Palermo, focusses on the high-energy study of astrophysical sources such as neutron stars and black holes of different masses that accrete matter from nearby stars. The BLOSSOM project of the SEAWIND team (<http://www.ifc.inaf.it/index.php/projects/seawind/>) exploits spectroscopic and temporal modeling of data in the X-ray energy band and other bands relevant to the study of hot plasmas in the immediate vicinity of such compact objects. Particular emphasis is given to the super-Eddington regime in which the accretion rate reaches extreme values, causing the launching of strong winds that reach significant fractions of the speed of light and therefore have effects on the surrounding interstellar medium. The BLOSSOM project is grouped into three work packages (WPs) concerning the study of the properties of accreting matter (WP1, temporal analysis of X-ray data), of the energy released in the form of hot plasma winds (WP2, spectral analysis of X-ray data) and their coupling (WP3, multi-wavelength data analysis).

The grant holder will investigate the nature of extreme matter flows near compact objects such as black holes and neutron stars. Particular emphasis will be given to their energy release into the surrounding medium and their net growth rate through spectroscopic and temporal analysis of archival and proprietary X-ray data. This will be complemented by multi-wavelength observations with the support of other members of the SEAWIND team. The grant holder will therefore have the opportunity to carry out the following activities related to WP2 (mainly) and other WPs: broadband and high-resolution spectral analysis of X-ray data from ultra-luminous X-ray sources (ULXs), Galactic X-ray binaries and active galactic nuclei (AGN); application of photoionized plasma models and search for relativistic, powerful, winds; production of a catalog of sources with winds and study of their relationship with the spectral shape and brightness of the same sources which is crucial to determine their nature. The grant holder will also have a budget available for travel, computers and one international conference per year related to the project.

Art. 2 – Requirements

The participation to the present selection is reserved to Italian or foreign citizens fulfilling the following requirements, under penalty of exclusion:

- Ph.D. in Physics or Astronomy or equivalent degree awarded by an Italian or foreign Institute or University.
- Master Degree in Physics or Astronomy or Mathematics or equivalent degree awarded by an Italian or foreign Institute or University together with documented scientific or technological research experience of at least 3 years;

For the sole purpose of admission to this selection procedure, the equivalence of the qualifications obtained by a candidate in a foreign country will be ascertained by the "Examining Commission" referred to in article 8 below, on the basis of the documentation produced by the candidate pursuant to article 3 of this "Announcement". It being understood that, in the event that the candidate is the winner of the aforementioned procedure, the Administration will transmit this documentation, together with the documentation referred to in Article 3, paragraph 2, letter a) or b), of the Decree of the President of the Republic of 30 July 2009, number 189, and together with the request of the candidate, to the Ministry of University and Research, in order to obtain the opinion required by article 4, paragraph 2, of the same Decree.

Candidates are required to have:

- very good command of oral and written English language.

In addition, the following desirable skills will be considered:

- experience in the exploitation of data from X-ray telescopes;
- documented expertise in multi-wavelength analysis of catalogs and large datasets;

- documented observational experience in X-ray binary stars and/or AGN, with particular reference to the topics of interest of this project;
- submission of two letters of reference, to be sent by email to protocollo.iasfpa@inaf.it not later than March 31st 2024 and specifying in the subject “Assegno di Ricerca: BLOSSOM (ref. Pinto)” and the name of the candidate;
- submission of a short (~1 page) description of the previous research activity.

Art. 3 – Application procedure

Applications should follow the scheme of the attached form (Annex 1), including the date and the signature of the applicant, together with the required documentation, and should be sent **no later than 23:59 (CEST) of March 31st, 2024**, with one of the following methods:

- a) via *ordinary or certified email sent to certified mail*, in non editable "**PDF**" format, at the following address: inafiasfpa@pcert.postecert.it not exceeding 20 MB, by the aforementioned deadline, mentioning in the subject of the email: “**Assegno di Ricerca: BLOSSOM (ref. Pinto)**”
- b) via registered mail with acknowledgment of receipt to INAF – Istituto di Astrofisica Spaziale e Fisica Cosmica di Palermo – Ufficio concorsi - via Ugo La Malfa n. 153 – 90146 Palermo, by the aforementioned deadline, reporting the following wording on the front page of the envelope and on the application form at the top left: “**Assegno di Ricerca: BLOSSOM (ref. Pinto)**”. For the date, the stamp and date of the accepting post office are valid.
- c) via express courier authorized to INAF – Istituto di Astrofisica Spaziale e Fisica Cosmica di Palermo – Ufficio concorsi – via Ugo La Malfa n. 153 – 90146 Palermo, by the aforementioned deadline, reporting the following wording on the front page of the envelope and on the application form at the top left: “**Assegno di Ricerca: BLOSSOM (ref. Pinto)**”.

Applications sent after the aforementioned deadline or with incomplete documentation will not be considered.

According to “Art. 39 decreto del Presidente della Repubblica” of the 28th of December 2000, n. 445, it is not required that the signature of the applicant is certified. However, **the lack of the applicant signature in the application form implies exclusion from the selection process**. Similarly, applications with clear inconsistency between the applicant’s declaration and the content of the application shall not be accepted. Applicants excluded from the selection procedure will be duly notified by the Director of INAF-IASF Palermo will be notified by registered mail with return receipt or by certified e-mail.

INAF - Institute of Space Astrophysics and Cosmic Physics is not responsible for any possible delay or missing in receiving the application or all the following communications. It is under the applicant’s responsibility to communicate to INAF-IASF Palermo promptly any modification in the applicant’s address.

The applicant must clearly and precisely state in the application form, under his/her own responsibility:

- a) name(s) and surname;
- b) place and date of birth;
- c) fiscal number (i.e. “Codice Fiscale”, if applicable);
- d) citizenship;
- e) civil and political rights in the state of citizenship;
- f) academic title(s) ;
- g) present address;

- h) list of papers and works presented as electronic attachments to the application;
- i) e-mail address to receive all the communication related to the present selection process and, possibly, a telephone number.

In addition, the applicant must state in the application form, under his/her own responsibility:

- I. not to have or have had any pending process for any reason with the justice or, if any, to declare all of them;
- II. if he/she has been (or it is) in charge, and if so for how long, of any contract with public or private Italian enterprises.

For the evaluation of the qualifications and according to what established by “Art. 2 Decreto 11 February 1998 by the Ministero dell’Università e della Ricerca Scientifica e Tecnologica”, the application must include what follows:

- a) curriculum vitae et studiorum (CV), where it is clearly demonstrated that the applicant has obtained the Ph.D. or the Master Degree followed by a documented scientific or technological research experience of at least 3 years;
- b) full list of publications;
- c) any other work or publication that the applicant considers useful for the evaluation of his/her CV, including an electronic copy of the master thesis and/or of the Ph.D. thesis or equivalent degrees awarded by foreign institutions;
- d) for foreign citizens, copy of the Master Degree certificate, or equivalent title, with the record of the exams;
- e) list of the qualifications and of any document attached to the application, mentioning the number of publications attached;
- f) declaration (under his/her own responsibility):
 - i. that the copy of the thesis, publications or any other document attached to the application are compliant to the original versions;
 - ii. that the applicant holds a Master Degree in Physics or Astronomy or Mathematics or Engineer or equivalent degree, compliant with international agreement or to the Art. 332 of the T.U. n. 1592/1933, awarded by an Italian or a foreign institute;
 - iii. that the applicant holds, if already awarded, a Ph.D. in Physics, Astronomy or Engineer or equivalent degree awarded by an Italian or foreign institution;
 - iv. any other degree or certificate of schools and specialization course he/she has been taking in Italy or abroad and/or any contract he/she has been assigned in the form of fellowship by Italian or foreign research institutions or Universities, and/or any other contract or working experience he/she has had;
- g) self-declaration, under his/her own responsibility, compliant with the DPR 445/2000 which states the duration of the contracts as for the content of the Art. 22, paragraph 9 of Italian law 240/2010 (“*The overall duration of the relationships established with the holders of the grants referred to in this article and of the contracts referred to in article 24, also with different universities, state, non-state or telematic, as well as with the entities referred to in paragraph 1 of this article, with the same subject, cannot in any case exceed twelve years, even if not continuous. For the purposes of the duration of the aforementioned relationships, periods spent on maternity leave or for health reasons according to current legislation do not count*”). Research fellowships ended before the promulgation of the law 240/2010 are excluded from this declaration.

The declaration as per point f) and the self-declaration as per point g) must be presented by filling out the attached form (Annex 2), and **they must be dated and signed. A copy of an ID document under validity must be attached.**

The applicant must mention in the self-declaration the degrees and qualifications owned as per point 7, Annex 1, providing all the information for the administration of the Institute of Space Astrophysics and Cosmic Physics to check the reliability of the declaration. Alternatively, the applicant can submit original certificates testifying the declared qualifications.

Art. 4 - Ineligibility

The postdoctoral research fellowship cannot be held either by INAF employees holding both permanent and non-permanent contracts, or by regular employees of research institutes, as listed in Art. 22, paragraph 1 of Italian Law 240/2010.

Fellows are not allowed to enroll in a “Laurea Specialistica”, or “Laurea Magistrale” (Master Level), or to join a Ph.D. program funded by fellowships, according to the Art. 22, paragraph 3 of Italian law 240/2010. For employees of the Italian Public Administration, a compulsory unpaid leave is foreseen.

Ownership of the grant entails placement on leave without allowances for the employee working, even part-time, in public administrations.

The fellowship cannot be held concurrently with other fellowships of whatever kind, except those awarded with the aim of integrating the training or research activity of the fellow through a period spent abroad. Aggregation of income from working activities, also part-time, carried out continuously is not accepted. Instead, limited self-employed occasional work is compatible with the fellowship, only if this is not prejudicial to the research activity carried out for INAF-IASF Palermo. This must be authorized in advance by the Director of INAF-IASF Palermo. Retired persons are not eligible for research fellowship.

When formally accepting the fellowship, the successful candidate will issue a declaration of absence of simultaneous fellowships.

Art. 5 –Duration of the Research fellowship

The start date of the working relationship will be agreed with the candidate, approximately by 31 May 2024 and, possibly, no later than 30 September 2024.

The research fellowship of the present call is offered for 1 year, with possible extension to a second year, following a favorable opinion of the scientific PI and financial support.

Further extensions are possible based on the project needs.

In agreement with Art. 22 of Italian law 240/2010, the overall duration of fellowships *cannot exceed six years* (even not in continuous form). Are excluded in this count those periods of possible overlap of the fellowship with a Ph.D. course, but still within the limit of the legal duration of the Ph.D., as well as the periods of maternity leave or health problems according to the current laws. Are excluded in this count also the fellowships ended before the promulgation of the law 240/2010.

Art. 6 - Site of the research activity

The candidate will carry out his/her research activity in the INAF - Institute of Space Astrophysics and Cosmic Physics of Palermo, in Italy.

Art. 7 - Salary

The gross salary for this position is 28.000,00 (Twenty-eight-thousand/00) euros per year and will be paid in deferred monthly installments, net of charges borne by INAF.

Applicable fiscal rules are provided by Art. 4 of Italian law 476/1984 and subsequent modifications and integrations. Applicable social security rules are provided by Art. 2, paragraph 26 and following paragraphs of Italian Law 335/1995 and subsequent modifications and integrations. Applicable rules for obligatory maternity leave are provided by the Decree of the Italian Ministry of Labour and Social Security dated 12th July 2007, published in the "Gazzetta Ufficiale" n. 247 on the 23rd of October 2007. Applicable rules for sick leave are provided by Art. 1, paragraph 788 of Italian law 296/2006, and subsequent modifications. During the period of obligatory maternity leave, the allowance paid by INPS (Italian National Institute for Social Security) according to Art. 5 of the above Decree dated 12 of July 2007 is supplemented by INAF up to the total amount of the fellowship. The period of obligatory maternity leave will not contribute to the duration of the fellowship foreseen by the contract.

The appointed candidate has to subscribe, on his/her own expenses, an insurance for workers before the official starting of the contract.

Art. 8 - Selection committee

The selection will be performed by a Selection Committee appointed by the Director of INAF – Institute of Space Astrophysics and Cosmic Physics of Palermo.

The selection committee is composed of three members, selected among the research personnel of INAF and other Italian or foreign institutions, experts on the research topics of the proposed project, and usually includes the scientific PI of the project. In compliance with the current rules, the committee should, if possible, guarantee the gender balance of its members. The president of the selection committee is designated among the members of the committee by the Director of INAF-IASF Palermo. The president will then designate, among the other members of the committee, the secretary of the selection procedure.

Art. 9 - Selection procedure and final ranking list

The comparative selection will be based on the evaluation of the CV and qualifications presented by the candidates (excluding the qualifications required for admission to this selection) and can be integrated with an interview, if the committee considers it necessary. The candidates eligible for the interview, must provide at the time of the interview a valid ID document to be identified by the committee.

The committee has a total of 100 points, to be attributed as follows: up to 60 points can be awarded for the CV and qualifications presented by the candidates in the application, the other 40 points can be awarded in case the interview is necessary for the evaluation process. The evaluation of the CV and qualifications is completed before the possible interview.

The CV and scientific qualifications of each candidate will be evaluated as follows:

1. **“curriculum vitae et studiorum”** and relevant qualifications proving the scientific skills of the candidate, carried out in Italian and foreign public and/or private bodies, as well as his/her relevance to the profile of research subject of this notice: **up to a maximum of 20 points.**
2. documented research activities in the exploitation of X-ray data: **up to a maximum of 10 points;**
3. documented expertise in multi-wavelength analysis of catalogs and large datasets; **up to a maximum**

- of 10 points;**
4. documented observational experience in accretion physics regarding X-ray binaries and/or super-massive black holes in AGN, with particular reference to the topics of interest of this project: **up to a maximum of 10 points;**
 5. publications in refereed journals and/or in conference proceedings, also considering their compliance with the topics of the present call: **up to a maximum of 10 points.**

Only candidates scoring at least 40 points in the above evaluation will be admitted to the possible interview.

If the committee needs to integrate the evaluation with an interview, the eligible candidates will be notified through e-mail or ordinary mail at least 15 days in advance. In this notification, the candidates eligible for the interview will also be notified of their score after the first step of the evaluation.

After the conclusion of the evaluation process, including the possible interview, the list of examined candidates and the final ranking is published.

The committee declares the appointed candidate and establishes a ranking list sorted by decreasing total score (i.e. the sum of the evaluation of the qualifications and possible interview). This ranking list and the evaluation comments of the committee are published in the “Albo Ufficiale” of INAF-IASF Palermo.

The documentation of the selection procedure and the ranking list will be approved by the Director of INAF-IASF Palermo. The final approved documents will be distributed through the “Albo Ufficiale” of INAF-IASF Palermo. The final ranking can be used, if the appointed candidate resigns from the offer of the position, to offer the position to the following candidate in the same ranking list.

Art. 10 - Awarding the fellowship

Within one month from the publication of the ranking list, the Director of INAF – Institute of Space Astrophysics and Cosmic Physics of Palermo will notify the highest-ranked candidate that he/she is appointed for the fellowship. The appointed candidate, within 10 days from the receipt of the offer, must provide a formal declaration of his/her acceptance of the fellowship or its withdrawal, together with a formal declaration that none of the conditions for ineligibility stated in the Art. 4 above are applicable.

The insurance for workers should be subscribed by the appointed candidate before the official starting of the fellowship. Concerning the third-party risks, the fellow will be covered by the global insurance of INAF. This does not cover the risks of the fellow towards INAF.

The fellow can resign from the contract with a written formal communication to be sent at any moment to the Director of INAF-IASF Palermo with at least 30 days notice. This communication should however be sent within the 1st or 16th day of the month. In case of no communication, the Administrative office can retain the payment of the fellowship for the month (30 days) expected for the formal communication. In case of resignation of the contract, the remaining amount of the fellowship can be offered to the following candidate in the ranking list, subject to a specific contractual stipulation.

The winner of the selection loses the right to the grant if he/she does not sign the contract within the deadline set in the award communication, except in duly proven cases of force majeure.

The fellow is required to provide periodic reports of his/her scientific activity according to the rules mentioned in the signed contract. The scientific PI of the project is entitled to evaluate and approve these reports and to communicate to the Director of INAF-IASF Palermo the outcome of the evaluation. In case of motivated non-approval of the scientific activity by the scientific PI, the contract can be rescinded by the Administration office.

Under no circumstances the signing of the contract starts a subordinate employment relationship or ensures any rights to access to permanent INAF staff positions.

Art. 11 – Starting date and fellowship obligations

The expected starting date of the fellowship is established and communicated by the Director of the INAF-Institute of Space Astrophysics and Cosmic Physics of Palermo in the communication and appointment for the signature of the contract.

The scientific PI of the project, and supervisor and coordinator of the scientific and research activity of the fellow is Dr. **Ciro Pinto**.

The fellow has the following obligations:

- a. to sign the contract before the starting date, accepting all the rules and regulations included;
- b. to start the research activity within the date appointed in the contract with INAF-IASF Palermo, unless prevented by exceptional circumstances, of which the Director of INAF- IASF Palermo must be duly informed;
- c. to follow all the rules of the Institute and communications that will be issued to the personnel by the Director of INAF- IASF Palermo and by the scientific PI of the project;
- d. to continue without interruptions the research activity during the whole duration of the fellowship;
- e. to issue periodical activity reports as established in the contract to the Director of INAF-IASF Palermo, the frequency of which will be indicated in the contract, approved by the project PI.
- f. to keep confidential information secret;
- g. to keep the INAF - IASF Palermo informed about changes in his-her contact details for a period of three years following the conclusion of this research grant;

The fellow who fails in carrying out his/her regular research activity, without producing justified reasons or fails repeatedly in fulfilling requirements or, according to the evaluation of the scientist in charge, shows evident lack of skills at the planned research activities, will incur in the termination of the contract.

In this case, the fellow will be duly notified, and he/she will be allowed to defend him/herself with a written statement addressed to the Director of the INAF - IASF Palermo.

The fellow will also be notified of the final decision, both in case of acceptance of his/her defense and in case of effective termination of the contract.

Temporary suspensions of the research fellowship are due in case of obligatory maternity leave or in case of illness lasting longer than one month or to any other serious reason. The reasons for suspending the research fellowship must be proved and certified, and promptly sent to the Director of INAF-IASF Palermo.

The Institute of Space Astrophysics and Cosmic Physics of Palermo can use at any time any adequate method to check on the development of the research activity of the fellow.

Art. 12 - Personal data processing

1. According to art. 13 of the “Regolamento (UE) 2016/679 del Parlamento e del Consiglio Europeo del 27 aprile 2016 relativo alla protezione delle persone fisiche con riguardo al trattamento dei dati personali,

nonché alla libera circolazione di tali dati, e che abroga la Direttiva 95/46/CE” also known as “Regolamento Generale sulla Protezione dei Dati”, INAF, as data controller, informs that the processing of personal data made available by the candidates who submit an application to participate in this competition procedure, or in any case acquired for this purpose by the aforementioned "Institute", is aimed solely at carrying out the activities and adopting of acts and measures provided for by the aforementioned procedure and will be carried out by the people responsible for carrying it out, including the members of the Examining Commission, at the same "Institute".

2. The data processing will be carried out through the use of specific procedures, including computerized ones, in the ways and within the limits necessary to pursue the purposes specified in the previous paragraph, also in the event of any communication to third parties.
3. The provision of personal data is necessary to verify possession of the requirements for participation in the competition procedure and failure to provide them may preclude such verification.
4. To those interested, the rights according to art. 15 and the following ones regarding the “Regolamento Generale sulla Protezione dei Dati” and, in particular, the right to access their personal data, to request rectification, cancellation, limitation of processing, as well as to oppose processing, which may be exercised by forwarding a specific request to “Istituto Nazionale di Astrofisica”, located in Rome, in Viale del Parco Mellini numero 84, Codice di Avviamento Postale (Postal Code) 00136, with the methods defined in the following paragraph.
5. The rights indicated in the previous paragraph may be exercised, without any formality, by sending a request to “Responsabile della Protezione dei Dati” of the “Istituto Nazionale di Astrofisica”:
 - a. by registered mail with acknowledgment of receipt to the address specified in paragraph 4 of this article;
 - b. by email sent to the following address: rpd@inaf.it;
 - c. by means of a certified email message sent to the following address: rpd-inaf@legalmail.it.
6. Subjects who believe that the processing of their personal data is carried out in violation of the provisions contained in “Regolamento Generale sulla Protezione dei Dati” and those provided for in this article have the right to lodge a complaint with “Garante per la Protezione dei Dati Personali”, in accordance with the provisions of article 77 of the aforementioned Regulation, or to appeal to the competent judicial authority, in accordance with the provisions of article 79 of the same Regulation.

Art. 13 – Publication of the call

The present call is distributed to all the Astronomical and Astrophysical Observatories and to all interested research institutes in general, and is published on the following web sites: <http://www.inaf.it> (INAF) and www.ifc.inaf.it (Institute of Space Astrophysics and Cosmic Physics of Palermo), on the web pages of the Ministero dell’Istruzione, dell’Università e della Ricerca (MIUR) and of the European Union, according to the guidelines defined by MIUR.

Art. 14 – Applicable regulations

The Institute of Space Astrophysics and Cosmic Physics shall abide by provisions in force promoting equal opportunities for women and men, non-discrimination and respect of privacy in processing personal data.

For what is not explicitly mentioned in this announcement, INAF-IASF Palermo shall act in compliance with the regulations in force concerning Italian public selection procedures, when applicable by analogy.

Palermo, December 22 2023

IL DIRETTORE
Dott. Giancarlo Cusumano